

WHAT IS CLAIMED IS:

1. A water soluble hybrid phthalocyanine derivative.
2. A derivative of claim 1 wherein the derivative is silicon[di(1,6-diphenyl-2,3 naphthalocyanine)]diphthalocyanine bis [poly(ethylene glycol) methyl ether].

5 3. A derivative of claim 1 wherein the derivative is silicon[di(1,6-diphenyl-2,3-naphthalocyanine)]diphthalocyanine bis[poly(ethylene glycol)].

10 4. A derivative of claim 1 wherein the derivative is silicon [di(1,6-diphenyl-2,3-naphthalocyanine)] diphthalocyanine [poly(ethylene glycol)][poly(ethylene glycol)acetylthiopropionate].

5. A derivative of claim 1 wherein the derivative is silicon[di(1,6-diphenyl-2,3-naphthalocyanine)]di(2,3-dicarboxyphthalocyanine)dihydroxide.

15 6. A derivative of claim 1 wherein the derivative is silicon[di(1,6-diphenyl-2,3-naphthalocyanine)]di(2,3-dicarboxyphthalocyanine) bis[poly(ethylene glycol)methyl ether].

7. A derivative of claim 1 wherein the derivative is sulfo silicon di[(1,6-15 diphenyl-2,3-naphthalocyanine] diphthalocyanine dihydroxide.

8. A derivative of claim 1 wherein the derivative is silicon [di(1,6-diphenyl-2,3-naphthalocyanine)] diphthalocyanine [poly(ethylene glycol)][poly(ethylene glycol)thiopropionate].

20 9. A derivative of claim 1 wherein the derivative is sulfo silicon di[(1,6-diphenyl-2,3-naphthalocyanine]diphthalocyanine[-2-butyrothiolactone]amidomethoxide]hydroxide.

10. A derivative of claim 1 wherein the derivative is sulfo silicon di[(1,6-diphenyl-2,3-naphthalocyanine)diphthalocyanine[N-(cysteine)amidomethoxide]hydroxide.

11. A derivative of claim 1 wherein the derivative is silicon tetra-tert-butylphthalocyanine bis [(4-aminobutyl) dimethylsilyloxide].

5 12. A derivative of claim 1 wherein the derivative is sulfo[2¹,2⁶,12¹,12⁶-tetraphenyldinaphtho[b,l]-7,17-dibenzo[g,q]-5,10, 15,20-tetraazoporphyrinato]silicon dihydroxide.

10 13. A derivative of claim 1 wherein the derivative is sulfo[2¹,2⁶,12¹,12⁶-tetraphenyldinaphtho[b,l]-7,17-dibenzo[g,q]-5,10, 15,20-tetraazoporphyrinato]silicon bis (4-Aminobutyl dimethylsilyloxide).

14. A derivative of claim 1 wherein the derivative is sulfo[2¹,2⁶,12¹,12⁶-tetraphenyldinaphtho[b,l]-7,17-dibenzo[g,q]-5,10, 15,20-tetraazoporphyrinato]silicon bis (3-amino-propyl diisopropylsilyloxide).

15 15. A derivative of claim 1 wherein the derivative is sulfo[2¹,2⁶,12¹,12⁶-tetraphenyldinaphtho[b,l]-7,17-dibenzo[g,q]-5,10, 15,20-tetraazoporphyrinato]silicon bis-[(10-carbomethoxydecyl) dimethyl silyloxide].

16. A derivative of claim 1 wherein the derivative is sulfo[2¹,2⁶,12¹,12⁶-tetraphenyldinaphtho[b,l]-7,17-dibenzo[g,q]-5,10, 15,20-tetraazoporphyrinato]silicon bis (7-oct-1-enyldimethylsilyloxide).

20 17. A derivative of claim 1 wherein the derivative is sulfo silicon naphthalocyanine bis(4-aminobutyl dimethyl silyloxide).

18. A derivative of claim 1 wherein the derivative is sulfo silicon

naphthalocyanine bis [10-(carbomethoxy)decyl dimethylsilyloxide].

19. A derivative of claim 1 wherein the derivative is sulfo silicon naphthalocyanine bis(3-aminopropylidiosopropylsilyloxide).

20. A derivative of claim 1 wherein the derivative is sulfo[2¹,2⁶,12¹,12⁶-
5 tetraphenyldinaphtho[b,l]-7,17-dibenzo[g,q]-5,10, 15,20-tetraazoporphyrinato]silicon bis[N-succinamido)aminobutyldimethyl silyloxide.

21. A derivative of claim 1 wherein the derivative is sulfo[2¹,2⁶,12¹,12⁶-
tetraphenyldinaphtho[b,l]-7,17-dibenzo[g,q]-5,10, 15,20-tetraazoporphyrinato]silicon
bis[4[(acetylthiopropionamido)butyl] dimethylsilyloxide].

22. A derivative of claim 1 wherein the derivative is sulfo[2¹,2⁶,12¹,12⁶-
tetraphenyldinaphtho[b,l]-7,17-dibenzo[g,q]-5,10, 15,20-tetraazoporphyrinato]silicon
bis[4[(thiopropionamido)butyl] dimethylsilyloxide].

23. A conjugate comprising a sulfonated hybrid phthalocyanine derivative and
a substituent.

15 24. A conjugate of claim 23 wherein the substituent is an antibody.

25. A conjugate of claim 24 wherein the antibody specifically binds to human
chorionic gonadotropin.

26. A conjugate of claim 23 wherein the substituent is a ligand analogue.

27. The conjugate of claim 26 wherein the ligand analogue is morphine.

20 28. A method for determining the presence or amount of at least one target

ligand capable of competing with a ligand analogue conjugate for binding sites available on a ligand receptor, said ligand analogue conjugate comprising at least one ligand analogue coupled to a signal development element, said signal development element comprising a water soluble phthalocyanine derivative, in a fluid sample suspected of containing said target ligand

5 comprising the steps of:

- a. contacting said fluid sample with said ligand analogue conjugate and said ligand receptor to form a homogeneous reaction mixture;
- b. detecting bound or unbound ligand analogue conjugates in said reaction mixture using said water soluble phthalocyanine derivative; and,
- c. relating the detectable signal to the presence or amount of said target ligand in said fluid sample.

10 29. A method of determining the presence or amount of at least one ligand in a fluid sample suspected of containing said target ligand comprising the steps of:

- a. contacting said fluid sample with a receptor said receptor coupled to a signal development element comprising a water soluble phthalocyanine derivative, so that said receptor specifically binds said target ligand to form a homogeneous reaction mixture;
- b. detecting bound receptor in said reaction mixture using said water soluble phthalocyanine derivative; and,
- c. relating the detectable signal to the presence or amount of said target ligand in said fluid sample.

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